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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,366	09/12/2000	John C. Johnson	4795.05	9028

7590

04/24/2003

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EXAMINER

APPIAH, CHARLES NANA

ART UNIT

PAPER NUMBER

2682

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/659,366

Applicant(s)

JOHNSON, JOHN C.

Examiner

Charles Appiah

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Double Patenting*

1. Claims 1-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,141,406 in view of Pennypacker et al. (5,777,558).

Regarding claims 1-2, claims 1 and 2 of the patent meet all limitations except the feature of comparing the identified echo characteristic with at least one stored value for the echo characteristic from previous connection between the local telephone and the remote telephone to determine whether there is a significant difference between the identified echo characteristic and the stored echo characteristic.

Pennypacker discloses a method for detecting fraudulent use of a communication system that includes the monitoring of a system parameter (see abstract). According to Pennypacker and as illustrated in Figures 2-4, a system parameter is determined and compared to a previous system parameter that was stored to ascertain for differences, and when the difference between the system parameter and the previously stored system parameter is greater than a predetermined amount an alarm is raised to indicate a potential fraudulent activity (see col. 3, line 23 to col. 4, line 65). Pennypacker teaches various system parameters that can be used as indicators of fraudulent use (see col. 1, line 61 to col. 2, line 7), including parameters that should vary slowly.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Pennypacker with claims 1 and 2 of the patent in order to

Art Unit: 2682

monitor any desired system parameter that should vary slowly including echo characteristics for detecting fraudulent activities.

Claims 3-10 read on claims 3-10 of the patent.

Claims 11-12 read on claims 13-14 of the patent.

Claims 13-16 read on claims 17-20 of the patent.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4, 6-9, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McNair (5,504,810)** in view of **Pennypacker et al. (5,777,558)**.

Regarding Claim 1, McNair discloses a method for detecting whether a remote telephone to which a telecommunication has been directed by a local telephone has been forwarded to a secondary destination by : establishing a telephone connection between the local telephone and the remote telephone (see col. 2, lines 62-67), identifying an echo characteristic to the telephone connection, and monitoring the echo characteristic for a significant change in the characteristic consistent with multiple legs to the telephone call (see col. 1, lines 57-67, col. 3, lines 42-67, and col. 5, lines 11-64, Fig. 2). McNair further discloses the use of the fraud detection hardware to compare a detected echo characteristics of a telephone call path with data representing attributes

of the telephone to determine whether the echo characteristics of the path are consistent with the call attributes by comparing an experimentally delay value with a known value and if the delay value exceeds the known value, this giving an indication of a multiple-leg call (see col. 6, lines 7-26, col. 7, lines 21-40). McNair does not specifically teach the feature of comparing the identified echo characteristic with at least one stored value for the echo characteristic from previous connection between the local telephone and the remote telephone to determine whether there is a significant difference between the identified echo characteristic and the stored echo characteristic.

Pennypacker discloses a method for detecting fraudulent use of a communication system that includes the monitoring of a system parameter (see abstract). According to Pennypacker and as illustrated in Figures 2-4, a system parameter is determined and compared to a previous system parameter that was stored to ascertain for differences, and when the difference between the system parameter and the previously stored system parameter is greater than a predetermined amount an alarm is raised to indicate a potential fraudulent activity (see col. 3, line 23 to col. 4, line 65). Pennypacker teaches various system parameters that can be used as indicators of fraudulent use (see col. 1, line 61 to col. 2, line 7), including parameters that should vary slowly.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Pennypacker with the system of McNair in order to monitor any desired system parameter that should vary slowly including echo characteristics for detecting fraudulent activities.

Regarding claim 2, McNair further disclose that the identifying and the monitoring of an echo characteristic is accomplished by ascertaining differences between a signal and an echo of the signal in the time domain (see col. 1, lines 62-66, col. 5, lines 13-15 and col. 7, lines 42-47).

Regarding claim 4, the combination of McNair and Pennypacker meet the monitoring of the echo characteristic is a step that includes selecting from the group consisting of identifying differences in the magnitude of the signal and an echo of the signal and identifying differences in the shape of the original signal and an echo of that signal by Pennypacker's teaching monitoring the system parameter changes by monitoring the required transmit power of a subscriber unit (see col. 1, line 61-67), which reads on identifying differences in the magnitude of the signal and an echo of the signal.

Regarding claim 6, McNair further discloses that identifying a characteristic echo includes intercepting a signal returned from the remote telephone on the trunk side of the remote central office (see col. 5, lines 1-7).

Regarding claim 7, McNair further discloses that the identifying of a characteristic echo includes receiving at the local telephone of a signal returned from the remote telephone (see col. 5, lines 13-21).

Regarding claim 8, McNair further discloses that the identifying of a characteristic echo utilizes signals transmitted from and received by the local telephone (see col. 6 lines, 16-21).

Regarding claim 9, McNair further discloses wherein the signals transmitted from the local telephone includes a known signal generated for the purpose of identifying and monitoring the echo characteristic (use of probe signal, col. 4, line 62 to col. 5, line 10).

Regarding claim 15, the combination of McNair meets the limitation of making of a response when it is determined that a significant change in the echo characteristic has occurred consistent with the forwarding of the remote telephone to a secondary telephone destination (see col. 7, lines 1-40).

Regarding claim 16, McNair further discloses that the response is selected from the group consisting of terminating the telephone connection, playing a pre-recorded message, generating a tone which may be heard at one or more of the local or remote telephones, muting the microphone of the local telephone, and recording the date and time of the remote party's addition of a secondary telephone destination (see col. 4, lines 8-11).

4. Claims 3, 5, 11, 12, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McNair** and **Pennypacker et al** as applied to claim 1, above, and further in view of **Townsend et al. (5,577,116)**.

Regarding claim 3, McNair as modified by Pennypacker do not specifically disclose that the identifying and monitoring of an echo characteristic is accomplished by ascertaining differences between a signal and an echo of the signal in the frequency domain.

Townsend discloses an apparatus for echo characterization on a communication channel that includes determining differences between a signal and an echo of the signal in the frequency domain (see col. 7, line 54 to col. 8, line 9).

It would therefore have been obvious to one of ordinary skill in the art to implement the combination of McNair and Pennypacker's fraud detection system using Townsend's teaching in order to reduce computational complexities and the cost involved in using time domain approaches in characterizing the echo as well as the overall operation of the system.

Regarding claims 5 and 11 McNair teaches the use of an echo canceller (212, Fig. 2), including filtering to identify echoes (see col. 5, lines 57-64), McNair as modified by Pennypacker do not specifically disclose that the identifying and the monitoring of an echo characteristic is accomplished by means selected from the group consisting of an adaptive filtration with a FIR filter, adaptive filtration with an IIR filter, and adaptive filtration with a lattice filter.

Townsend discloses an apparatus for echo characterization on a communication channel that includes the use of adaptive filtration with a FIR filter (see col. 1, line 53).

It would therefore have been obvious to one of ordinary skill in the art to implement the combination of McNair and Pennypacker's fraud detection system using Townsend's teaching in order to reduce computational complexities and the cost involved in using time domain approaches in characterizing the echo as well as the overall operation of the system.



Regarding claim 12, McNair as modified by Pennypacker do not specifically disclose that the identifying of a characteristic echo is accomplished by summing the squares of the coefficients used by an adaptive FIR filter to minimize echo.

Townsend discloses an apparatus for echo characterization on a communication channel that includes the summing of the squares of the coefficients used by an adaptive FIR filter (see col. 8, lines 47-59).

It would therefore have been obvious to one of ordinary skill in the art to implement the combination of McNair and Pennypacker's fraud detection system using Townsend's teaching in order to benefit from the advantages of digital echo canceling circuitry to reduce computational complexities and the cost involved in using time domain approaches in characterizing the echo as well as the overall operation of the system.

Regarding claims 13 and 14, McNair as modified by Pennypacker and Townsend do not specifically disclose that the step of verifying that a change in the echo characteristic is caused by the forwarding of the remote telephone to a secondary telephone destination by continuing to monitor the echo characteristic after the significant change to determine whether the echo characteristic has returned to its original value.

However, those of ordinary skill in the art would have appreciated continuing to monitor the echo characteristic for any desired period of time (including approximately 3 seconds to 3 minutes) after detecting a significant change to see if the echo characteristic returns to its original value or not in order ensure that the detected change

Art Unit: 2682

in the echo on the line, indeed to ensure that the desired result of an additional connection resulting from a forwarded call on the telephone line and not a false indication.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **McNair and Pennypacker et al** as applied to claim 1 above, and further in view of **Kawahara et al. (5,859,907)**.

Regarding claim 10, McNair as modified by Pennypacker do not specifically disclose that the signals generated are selected from the group consisting of a signal with a specific tone and white noise.

Kawahara disclose an echo canceler for training an echo path estimation that includes the transmission of a known signal of a specific tone or white noise generated for the purpose of identifying and monitoring an echo characteristic (see col. 4 lines 20-24, col. 5 lines 44-48).

It would have been obvious to one of ordinary skill in the art to use Kawahara's training signal generation means in the fraud detection apparatus of McNair and Pennypacker in order to provide a good echo estimation at all times even during periods of silence on the line.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Powell (5,991,617) discloses a method identifying the fraudulent use of a cellular telephone.

Rocha (6,295,446) discloses a method for detecting fraudulent calls in a radio network.

Art Unit: 2682

Betts et al. (6,327,352) discloses a system for real time detection of fraud within a telecommunications system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Appiah whose telephone number is 703 305-4772. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703 305-6739. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703 308-6296 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.

CA  
April 19, 2003

  
**CHARLES APPIAH**  
**PATENT EXAMINER**



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: ASSISTANT COMMISSIONER FOR PATENTS

Washington, D.C. 20231

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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DATE MAILED:

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

See attached